

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ES-1
ABBREVIATIONS AND ACRONYMS	x
1.0 PURPOSE AND NEED FOR THE ACTION	
1.1 Background	1-1
1.2 Lead Agency and Cooperating Agencies	1-1
1.3 Purpose of the Action.....	1-4
1.4 Need for Action	1-4
1.5 Public Scoping and Planning Activities	1-4
1.5.1 Review Process and Standards	1-4
1.5.2 Permitting of Proposed Action	1-5
1.5.2.1 Historic Preservation	1-5
1.5.2.2 Flora and Fauna.....	1-6
1.5.2.3 Wetlands, Stormwater, and Floodplains.....	1-7
1.5.2.4 Air Quality.....	1-9
1.5.2.5 Risk Management Plan.....	1-10
1.5.2.6 Hazardous Substances Disclosures	1-11
2.0 DESCRIPTION AND COMPARISON OF ALTERNATIVES	
2.1 Description of the Alternatives	2-1
2.2 Baseline Conditions	2-4
2.2.1 Other Planned Land Uses	2-5
2.2.2 Enhanced Use Leasing	2-6
2.3 Components of Alternatives.....	2-6
2.3.1 Land Use	2-6
2.3.2 Management Concept.....	2-8
2.3.2.1 ISRP Authority.....	2-9
2.3.2.2 Proposed ISRP Management and Structure	2-9
2.3.2.3 Land Development Regulation and Design Standards	2-11
2.3.2.4 Policies and Procedures.....	2-11
2.3.2.5 Design Approval Committee	2-11
2.3.2.6 NASA Review Board	2-12
2.3.2.7 Inter-local Agreements	2-12
2.3.2.8 Transfer of Occupancy and Management Responsibility	2-13
2.4 Alternatives Considered but not Evaluated Further	2-13
2.5 Comparison of Alternatives.....	2-13
2.5.1 No Action Alternative	2-13
2.5.2 Alternative 1 and Phase F	2-14
2.5.3 Alternative 2 and Phase F	2-14
3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT	
3.1 Land Use	3-1
3.1.1 John F. Kennedy Space Center	3-1
3.1.1.1 Alternative 1	3-2
3.1.1.2 Alternative 2	3-2
3.1.1.3 Phase F	3-2
3.1.2 Surrounding Land Use	3-2
3.2 Atmospheric Environment.....	3-3
3.2.1 Climate	3-3

Table of Contents

3.2.2	Air Quality.....	3-3
3.2.2.1	Ozone (O ₃)	3-8
3.2.2.2	Sulfur Dioxide (SO ₂).....	3-8
3.2.2.3	Nitrogen Dioxide (NO ₂)	3-10
3.2.2.4	Carbon Monoxide (CO).....	3-10
3.3	Ambient Noise	3-12
3.4	Geology and Soils	3-12
3.4.1	Geology	3-12
3.4.2	Soils.....	3-19
3.5	Hydrology and Water Quality	3-24
3.5.1	Surface Water and Floodplain	3-24
3.5.1.1	Alternative 1	3-25
3.5.1.2	Alternative 2	3-25
3.5.1.3	Phase F	3-25
3.5.2	Surface Water Quality	3-25
3.5.3	Groundwater Sources	3-26
3.5.3.1	Alternative 1	3-33
3.5.3.2	Alternative 2	3-33
3.5.3.3	Phase F	3-33
3.5.4	Groundwater Quality	3-33
3.5.4.1	Surficial Aquifer Systems.....	3-33
3.5.4.2	Intermediate Aquifer System	3-34
3.5.4.3	Floridan Aquifer System	3-40
3.6	Biological Resources	3-40
3.6.1	Methodology	3-40
3.6.2	General Overview of Biological Resources of the KSC	3-41
3.6.3	Terrestrial Resources.....	3-41
3.6.3.1	Alternative 1	3-41
3.6.3.2	Alternative 2	3-42
3.6.3.3	Phase F	3-42
3.6.4	Wetland Resources.....	3-45
3.6.4.1	Alternative 1	3-45
3.6.4.2	Alternative 2	3-45
3.6.4.3	Phase F	3-46
3.6.5	Aquatic Resources.....	3-46
3.6.5.1	Alternative 1	3-46
3.6.5.2	Alternative 2	3-46
3.6.5.3	Phase F	3-47
3.6.6	Endangered and Threatened Species.....	3-47
3.6.6.1	Fauna	3-48
3.6.6.1.1	Alternative 1 (Phases A-E)	3-48
3.6.6.1.2	Phase F	3-51
3.6.6.1.3	Alternative 2 (Phases A-E)	3-52
3.6.6.2	Flora	3-55
3.6.6.2.1	Alternative 1 (Phases A-E)	3-55
3.6.6.2.2	Alternative 2	3-56
3.6.6.2.3	Phase F	3-56
3.7	Socio-economics.....	3-63
3.7.1	Area of Socio-economic Interest	3-63
3.7.2	Population Characteristics	3-63
3.7.3	Age Distribution.....	3-65
3.7.4	Per Capita Personal Income	3-66

3.7.5	Employment	3-68
3.7.6	KSC Work Force (Historical and Current)	3-70
3.7.7	Regional Economics	3-71
3.7.8	Housing	3-73
3.7.9	Social Conditions	3-74
3.7.10	Education Level.....	3-75
3.7.11	Crime Rates	3-75
3.7.12	Public Schools.....	3-76
3.7.13	Environmental Justice	3-77
3.7.14	Transportation	3-79
3.7.14.1	Methodology.....	3-79
3.7.14.2	Existing Transportation System.....	3-79
3.7.15	Public and Emergency Services	3-80
3.7.16	Recreation.....	3-82
3.8	Cultural Resources	3-82
3.8.1	Archeological.....	3-82
3.8.1.1	Alternative 1	3-83
3.8.1.2	Alternative 2	3-83
3.8.1.3	Phase F	3-84
3.8.2	Historical.....	3-84
4.0	ENVIRONMENTAL CONSEQUENCES	
4.1	Land Use	4-1
4.1.1	Standards of Significance	4-1
4.1.2	Impacts Discussion	4-1
4.1.2.1	No Action Alternative	4-2
4.1.2.2	Alternative 1 and Phase F	4-2
4.1.2.3	Alternative 2 and Phase F	4-3
4.1.2.4	Surrounding Region	4-4
4.1.3	Cumulative Impacts	4-5
4.1.4	Impacts and Mitigation Measures	4-5
4.2	Air Quality.....	4-5
4.2.1	Standards of Significance	4-5
4.2.2	Impacts Discussion	4-6
4.2.2.1	No Action Alternative	4-6
4.2.2.2	Alternative 1, Alternative 2 and Phase F	4-6
4.2.3	Cumulative Impacts	4-8
4.2.4	Impacts and Mitigation Measures	4-10
4.3	Ambient Noise.....	4-11
4.3.1	Standards of Significance	4-11
4.3.2	Impacts Discussion	4-11
4.3.3	Construction-Related Impacts	4-12
4.3.4	Operation-Related Impacts	4-12
4.3.5	Cumulative Impacts	4-12
4.4	Geology and Soils	4-12
4.4.1	Standards of Significance	4-12
4.4.2	Impacts Discussion	4-12
4.4.2.1	No Action Alternative	4-13
4.4.2.2	Alternative 1	4-13
4.4.2.3	Alternative 2	4-14
4.4.3	Impacts and Mitigation Measures	4-14
4.4.4	Cumulative Impacts	4-15

4.5	Hydrology and Water Quality	4-15
4.5.1	Standards of Significance	4-15
4.5.2	Impacts Discussion	4-16
4.5.2.1	No Action Alternative	4-17
4.5.2.2	Alternative 1 (Phases A-F).....	4-17
4.5.2.3	Alternative 2 (Phases A-F).....	4-18
4.5.3	Cumulative Impacts	4-19
4.5.4	Impacts and Mitigation Measures.....	4-21
4.6	Biological Resources	4-22
4.6.1	Standards of Significance	4-22
4.6.2	Impacts Discussion	4-22
4.6.2.1	No Action Alternative	4-23
4.6.2.2	Alternative 1 (Phases A-F).....	4-25
4.6.2.3	Alternative 2 (Phases A-F).....	4-30
4.6.3	Cumulative Impacts	4-34
4.6.4	Impacts and Mitigation Measures.....	4-36
4.7	Socio-economics and Environmental Justice.....	4-39
4.7.1	Standards of Significance	4-39
4.7.2	Impacts Discussion	4-39
4.7.2.1	Employment	4-39
4.7.2.2	No Action Alternative	4-39
4.7.2.3	Alternative 1, Alternative 2, and Phase F	4-40
4.7.3	Regional Economics	4-40
4.7.3.1	No Action Alternative	4-40
4.7.3.2	Alternative 1, Alternative 2, and Phase F	4-41
4.7.4	Population	4-42
4.7.4.1	No Action Alternative	4-42
4.7.4.2	Alternative 1, Alternative 2, and Phase F	4-42
4.7.5	Housing	4-43
4.7.5.1	No Action Alternative	4-43
4.7.5.2	Alternative 1, Alternative 2, and Phase F	4-43
4.7.6	Social Conditions	4-43
4.7.6.1	No Action Alternative	4-43
4.7.6.2	Alternative 1, Alternative 2, and Phase F	4-43
4.7.7	Environmental Justice	4-44
4.7.7.1	No Action Alternative	4-44
4.7.7.2	Alternative 1, Alternative 2, and Phase F	4-44
4.7.8	Transportation	4-45
4.7.8.1	Standards of Significance	4-45
4.7.8.2	Impact Discussion.....	4-45
4.7.9	Public and Emergency Services	4-45
4.7.10	Recreation.....	4-46
4.7.10.1	Standards of Significance	4-46
4.7.10.2	Impact Discussion.....	4-46
4.7.10.2.1	No Action Alternative	4-46
4.7.10.2.2	Alternative 1, Alternative 2, and Phase F	4-46
4.7.10.3	Impacts and Mitigation Measures	4-47
4.7.11	Cumulative Impacts	4-47

Table of Contents

4.8	Cultural Resources	4-48
4.8.1	Standards of Significance	4-48
4.8.2	Impact Discussion.....	4-48
4.8.3	Cumulative Impacts	4-48
4.8.4	Impacts and Mitigation Measures	4-49
4.9	Relationships and Commitment of Resources	4-49
4.9.1	Short-Term Uses of The Human Environment and the Maintenance and Enhancement of Long-Term Productivity.....	4-49
4.9.2	Irreversible and Irretrievable Commitment of Resources.....	4-50
4.9.3	Summary of Cumulative Impacts.....	4-51
4.9.4	Consistency with other Approved Plans	4-52

LIST OF FIGURES

Figure 1-1	Regional Area of Interest on John F. Kennedy Space Center, Florida.....	1-2
Figure 1-2	Location of Alternatives for the International Space Research Park on John F. Kennedy Space Center, Florida	1-3
Figure 2-1	Proposed Land Use of Alternative 1 and Phase F	2-2
Figure 2-2	Proposed Land Use of Alternative 2 Not Showing Phase F	2-3
Figure 2-3	Planned Land Uses to be Considered Part of Baseline Development at Kennedy Space Center.....	2-7
Figure 3-1	Permanent Air Monitoring Station on KSC	3-6
Figure 3-2	Maximum Monthly Values for 1 hour and 8 hour O ₃ from Oct. 2001 to Sept. 2002 and the 10-Year Mean	3-9
Figure 3-3	Maximum Monthly Values for 3 hour and 24 hour SO ₂ from Oct. 2001 to Sept. 2002 and the 10-Year Mean	3-9
Figure 3-4	Maximum Monthly Values for 8 hour and 3 hour for NO ₂ from Oct. 2001 to Sept. 2002 and the 10-Year Mean	3-10
Figure 3-5	Maximum Monthly Values for 1 hour and 8 hour CO from Oct. 2001 to Sept. 2002 and the 10-Year Mean	3-11
Figure 3-6	Location of North to South and East to West Geologic Cross-sections on Kennedy Space Center.....	3-15
Figure 3-7	North to South Geologic Cross-section for Kennedy Space Center.....	3-16
Figure 3-8	East to West Geologic Cross-section for Kennedy Space Center.....	3-17
Figure 3-9	Soils of Preferred Alternative 1 and Phase F	3-20
Figure 3-10	Soils of Alternative 2 Not Showing Phase F	3-21
Figure 3-11	Geohydrological Units on Kennedy Space Center.....	3-27
Figure 3-12	Groundwater Subaquifers of the Surficial Aquifer on Kennedy Space Center	3-29
Figure 3-13	Potential for Recharge of the Surficial Aquifer.	3-31
Figure 3-14	Groundwater Circulation in the Surficial Aquifer.	3-32
Figure 3-15	Chemical Evolution of Groundwater in the Surficial Aquifer	3-39
Figure 3-16	Existing Land Use of Alternative 1 and Phase F	3-43
Figure 3-17	Existing Land Use of Alternative 2 Not Showing Phase F	3-44
Figure 3-18	Bald Eagle Nest Locations for 2002 Nearest to the Proposed ISRP Alternatives.....	3-54
Figure 3-19	Region of Influence for Socio-Economic Analysis of Alternatives for the International Space Research Park	3-64
Figure 3-20	Historic and Projected Population	3-66
Figure 3-21	Historic and Projected Per Capita Income	3-67
Figure 3-22	Historic and Projected Employment Level	3-70
Figure 3-23	Current and Projected Unemployment Rate	3-71
Figure 3-24	Kennedy Space Center Historical Workforce Levels	3-72
Figure 3-25	Roadways and Service Levels for Potentially Effected Regions Surrounding the Proposed ISRP Alternative Locations	3-81
Figure 4-1	ISRP Absorption Forecasts for the Baseline, Pessimistic, and Optimistic Scenarios	4-41

LIST OF TABLES

Table ES-1	Summary of Impacts and Mitigation Measures	viii
Table 2-1	Comparison of Development Requirements and Environmental Considerations between Alternative 1 and Alternative 2 for the Proposed International Space Research Park (ISRP)	2-15
Table 3-1	State and Federal Ambient Air Quality Standards	3-5
Table 3-2	KSC Air Quality Data Summary PAMS A, 2002.....	3-7
Table 3-3	Generalized Stratigraphy at Kennedy Space Center	3-14
Table 3-4	Soils of Alternative 1 (Phases A-E)	3-22
Table 3-5	Soils of the Phase F	3-22
Table 3-6	Soils of Alternative 2 (Phases A-E)	3-22
Table 3-7	Soil Classes with the Series and Land Cover Types in Each	3-23
Table 3-8	Florida Surface Water Classifications.....	3-24
Table 3-9	General Characteristics of the Aquifers on Kennedy Space Center	3-28
Table 3-10	Chemical Parameters in Groundwater by Subaquifer and Depth	3-35
Table 3-11	Area of Existing Land Use Types on ISRP Alternative Sites	3-47
Table 3-12	State and Federally Listed Species Occurring at KSC and Potentially Occurring within Habitats on ISRP Alternative Sites	3-49
Table 3-13	Status of Endangered and Threatened Plants of the Kennedy Space Center Area.....	3-57
Table 3-14	Common Habitats of Endangered and Threatened Plants of the Kennedy Space Center Area Indicating Potential for Occurrence on ISRP Alternative Sites.....	3-60
Table 3-15	Historic Population	3-65
Table 3-16	Projected Population Growth	3-65
Table 3-17	Age Distribution (Year 2000)	3-66
Table 3-18	Historic Per Capita Income	3-67
Table 3-19	Projected Per Capita Income	3-67
Table 3-20	Employment by Type and Industry (2000)	3-68
Table 3-21	Historic Employment Level	3-69
Table 3-22	Projected Employed Persons.	3-69
Table 3-23	Current (2000) and Projected Unemployment Rate	3-70
Table 3-24	Current (2000) and Projected Real Taxable Sales	3-73
Table 3-25	Housing and Cost of Living	3-74
Table 3-26	Migration and Immigration, 5 Years Prior to Year 2000 Census	3-75
Table 3-27	Education Level.....	3-76
Table 3-28	Index Crime Rates and Number of Offenses, 2001	3-76
Table 3-29	Public Schools.....	3-77
Table 3-30	Percent of Populations Below the Poverty Level, 1999	3-78
Table 3-31	Percentage of Citizens by Poverty Level and Age, 1999	3-78
Table 4-1	Proposed Development Phases and Existing Land Use Restrictions for Alternative 1 (Phases A-F).....	4-3
Table 4-2	Emissions from Automobiles at KSC and in Brevard County, including vehicles associated with the ISRP	4-9
Table 4-3	Estimated Changes in Emissions associated with the proposed ISRP at KSC and within Brevard County	4-10
Table 4-4	General Site-Specific Impacts to Hydrology and Water Quality Associated with Construction and Operations of Roads and Facilities at the Proposed ISRP	4-16
Table 4-5	Summary of Impacts to Habitat Types Proposed for Development on the ISRP Alternative Sites.....	4-23

LIST OF TABLES (continued)

Table 4-6	State and Federal Listed Species with Potential for Significant Impacts from ISRP Development by Alternative Site.....	4-24
Table 4-7	Estimation of Direct and In-Direct Job Creation from ISRP between 2004 and 2022	4-40

APPENDICES

- Appendix A Contributors to the EIS and Agencies and Individuals Consulted.
- Appendix B International Space Research Park Environmental Impact Statement Scoping Report. January 2003.
- Appendix C Biological Assessment and the Biological Opinion for the International Space Research Park at John F. Kennedy Space Center, Florida. April 2003.
- Appendix D Primary Resource Documents.
- Appendix E Literature Cited.
- Appendix F Description of Soil Series on Kennedy Space Center, FL.
- Appendix G Baseline Chemical Characteristics and Screening Criteria for Soil, Surface Water, and Ground Water at Kennedy Space Center Sampled in Proximity to the International Space Research Park Alternative Sites.
- Appendix H Copies of Letters of Requests for Regulatory Validation of Jurisdictional Wetland Boundaries on ISRP Alternative Sites.
- Appendix I Habitat Types of the International Space Research Park Alternative Sites (modified from NASA 1997).
- Appendix J Limited Traffic Impact Analysis, International Space Research Park, Brevard County, Florida. April 2003.
- Appendix K Cultural Resource Assessment Survey of the Proposed International Space Research Park at the John F. Kennedy Space Center, Brevard County, Florida. March 2003.
- Appendix L International Space Research Park, Kennedy Space Center, Florida. Environmental Site Assessment Reports
- Appendix M Public Review of Draft Environmental Impact Statement

ABBREVIATIONS AND ACRONYMS

Al	Aluminum
ac	acres
ACI	Archaeological Consultants, Inc.
ACHP	Advisory Council on Historic Preservation
aka	also known as
ASTM	American Society of Testing and Materials
Apr	April
ARPA	Archeological Resources Protection Act
Aug	August
Ave	Avenue
Avg	Average
BA	Biological Assessment
BEBR	Bureau of Economic and Business Research
Bh	Bohrium
BMP	Best Management Practices
BO	Biological Opinion
C	Celsius
Ca	Calcium
ca	circa
CAA	Clean Air Act
CCAFS	Cape Canaveral Air Force Station
CCS	Cape Canaveral Spaceport
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CFRP	Central Florida Research Park
Cl	Chloride
cm	centimeters
CNS	Canaveral National Seashore
CO	Carbon monoxide
CO ₂	Carbon dioxide
CRAS	Cultural Resources Assessment Survey
CWA	Clean Water Act of 1977
DAC	Design Approval Committee
dB	decibels
dBA	decibels measured on an A scale
Dec	December
DEIS	Draft Environmental Impact Statement
DO	Dissolved oxygen
DRMO	Defense Reutilization Management Office
EEL	Environmentally Endangered Lands
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
EPO	Environmental Programs Office
ERP	Environmental Resource Permit
ESA	Endangered Species Act

F	Fahrenheit
FAAQS	Florida Ambient Air Quality Standards
FAC	Florida Administrative Code
FAHJ	Fire Authority Having Jurisdiction
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FDOT	Florida Department of Transportation
Fe	Iron
Feb	February
FEMA	Federal Emergency Management Agency
FFWCC	Florida Fish and Wildlife Conservation Commission
FGDC	Federal Geographic Data Committee
FIRM	Flood Insurance Rate Maps
FLUCCS	Florida Land Use, Cover and Forms Classification System
FMSF	Florida Master Site File
FR	Federal Register
F.S.	Florida Statutes
FSA	Florida Space Authority
ft ²	square feet
gpd	gallons per day
ha	hectares
HAP	Hazardous Air Pollutant
HC	Hydrocarbons
hr	hour
in	inches
IRL	Indian River Lagoon
ISRP	International Space Research Park
ISRPA	International Space Research Park Authority
ISS	International Space Station
ITS	Incidental Take Statement
Jan	January
JEA	Jones, Edmunds and Associates
Jul	July
K	Potassium
kg	kilograms
kl	kiloliters
km	kilometer
KSC	Kennedy Space Center
L	liters
lbs	pounds
m	meters
m ²	square meters
m ³	cubic meters

Mar	March
Mg	Magnesium
mg	milligrams
mg/l	milligrams per liter
mi	miles
mi ²	square miles
MINWR	Merritt Island National Wildlife Refuge
Mn	Manganese
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
MSL	mean sea level
Na	Sodium
NAAQS	National Ambient Air Quality Standards
NAD	North American Datum
NAGPRA	Native American Grave Protection or Repatriation Act
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act of 1969
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO _x	Nitrogen Oxides
NO ₂	Nitrogen Dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
Nov	November
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRB	NASA Review Board
NRHP	National Register of Historical Places
NSPS	New Stationary Performance Standards
NSR	New Source Review
O ³	Ozone
Oct	October
OFW	Outstanding Florida Waters
OTTED	Office of Transportation, Trade and Economic Development
PAH	Polynuclear aromatic hydrocarbons
PAMS	Permanent Air Monitoring System
pers. comm.	personal communication
PICA	Pine Island Conservation Area
PM	particulate matter
PM10	particulate matter < 10 microns in diameter
ppb	parts per billion
ppm	parts per million
PPOC	Principle Point of Contact
ppt	parts per thousand
PSD	Prevention of Significant Deterioration
PSM	Process Safety Management

R&D	Research and Development
RHA	Rivers and Harbors Act of 1899
RMP	Risk Management Plan
SAT	Similarity of Appearance to a Threatened Taxon
SCAT	Space Coast Area Transit
SCRA	Space Coast Regional Airport
Sept	September
SERPL	Space Experiments Research and Processing Laboratory
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJRWMD	St. Johns River Water Management District
SO ₂	Sulfur dioxide
SR	State Road
SSC	Species of Special Concern
TDS	Total Dissolved Solids
TMDL	Total Mean Daily Loads
TOC	Total Organic Carbon
U.S.	United States
USACE	United States Army Corp of Engineers
USFWS	United States Fish and Wildlife Service
µg	microgram
VAB	Vehicle Assembly Building
VIC	Visitor Information Center
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
yr B.P.	years before present